

Catfish in Iowa Lakes

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Population Densities, Biomass, and Age-growth of Common Carp and Black Bullheads in Clear Lake

Clear Lake is a shallow eutrophic lake with about 3,600 surface acres located in Cerro Gordo County, Iowa. Clear Lake has a maximum depth of 19 feet and has extensive muck flats and few rocky reefs. Due to poor water clarity, Clear Lake generally does not have stands of aquatic vegetation. Dense stands of giant bulrush are present, particularly along the northern shoreline. Water quality has substantially deteriorated in Clear Lake since the 1970s. In fact, phosphorus concentrations have nearly tripled and water clarity has decreased nearly 3-fold during this time period. In response to the deteriorating water quality, a diagnostic study was initiated to determine the causes of the decline and to recommend management guidelines to improve water quality in the lake. One conclusion from this investigation was that the impact of benthivorous fishes needs to be addressed to help ensure the successful renovation of Clear Lake.

Benthivorous fishes are known to deteriorate water quality in shallow, nutrient-rich lakes which may be attributed to their benthic feeding habits. This is especially true for common carp, which have been implicated in increasing phosphorus concentrations in lakes, increasing turbidity, and decreasing macrophyte abundance. Therefore, reducing the biomass of common carp is being considered as a viable management option to help renovate Clear Lake. This investigation is being undertaken to provide baseline data and monitoring during restoration efforts. Population densities, biomass, and age-growth of common carp and black bullheads are being estimated and monitored. This project has also expanded to include research conducted in conjunction with Iowa State University (ISU). Specifically, the ISU research will examine the effects of common carp and recently discovered zebra mussels on water quality in Clear Lake. A model will be developed to explain these relationships. Development of this model should also have application and use in other natural lakes in Iowa.

Population and biomass of common carp and bullhead have been estimated since 1999. From a peak density in 2004 of 383 lbs/acre, the common carp biomass has decreased to 125 lbs/acre in 2009. Black bullhead biomass was estimated to be nearly 300 lbs/acre in 1999 but in 2009, only one black bullhead was captured during summer trawling.

